

RESEARCH AND DEVELOPMENT IN THE BUSINESS SECTOR 2018
NATIONAL REFERENCE METADATA IN SINGLE INTEGRATED METADATA STRUCTURE (SIMS)

CONCEPT 1 – CONTACT

Sub-Concept 1.1: Contact organisation

National Statistics Office (NSO)

Sub-Concept 1.2: Contact organisation unit

Unit B4: Business Registers, Directorate B – Business Statistics

Sub-Concept 1.3: Contact name

Ms. Christianne Micallef

Sub-Concept 1.4: Contact person function

Head of Unit

Sub-Concept 1.5: Contact mail address

National Statistics Office (NSO),
Unit B4, Business Registers Unit,
Lascaris, Valletta VLT 2000

Sub-Concept 1.6: Contact e-mail address

christianne.micallef@gov.mt

Sub-Concept 1.7: Contact phone number

+356 25997353

CONCEPT 2 – METADATA UPDATE

Sub-Concept 2.1: Metadata last certified

1st March 2021

Sub-Concept 2.2: Metadata last posted

29th March 2021

Sub-Concept 2.3: Metadata last update

29th March 2021

CONCEPT 3 – STATISTICAL PRESENTATION

Sub-Concept 3.1: Data description

Research and Development is defined as creative work undertaken on a systematic basis to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

The objective of the European R&D statistics is to cover all intramural R&D activities, including expenditure and personnel. R&D statistics are compiled for four institutional sectors of performance: Business Enterprise (BES), Government (GOV), Higher Education (HES) and Private Non-Profit (PNP). In Malta, the PNP sector is not captured as it is considered to be negligible.

This report covers the BES sector. For further information on GOV and HES refer to metadata file: <https://metadata.nso.gov.mt/reports.aspx?id=3>

The R&D expenditure is broken down by source of funds, by type of costs, by type of economic activity (NACE), by size class, by type of R&D, by fields of science, and by socio-economic objectives. R&D personnel data is available in full-time equivalent (FTE) and in head count (HC). The data is further broken down by qualification and gender of recruited personnel, size class and economic activity (NACE) of the enterprise and field of science.

R&D data are compiled in accordance to the guidelines laid down in the Proposed standard practice for surveys of research and experimental development - Frascati Manual (FM), OECD, 2015.

Sub-Concept 3.2: Classification system

Classification used in the R&D are the following: [NACE Rev.2](#) classification, Fields of Research & Development and Socio-Economic Objectives.

Sub-Concept 3.3: Sector coverage

All known R&D performing enterprises, irrelevant of their employment size class, are surveyed for this study.

Sub-Concept 3.4: Statistical concepts and definitions

Variables follow the methodology of the Frascati Manual (2015): <https://www.oecd-ilibrary.org/docserver/9789264239012en.pdf?expires=1614628132&id=id&accname=guest&checksum=1F00DCBC50E7F4880B8D2755663E1E92>

Sub-Concept 3.5: Statistical unit

Enterprise.

Sub-Concept 3.6: Statistical population

The frame population for business statistics is the official Business Register including all the business enterprises active in the reference period. The target enterprises are the ones which had R&D taking place during the year under study. The main identifiers of the active R&D population are: active R&D enterprises from previous rounds, the Community Innovation Survey (CIS), as it addresses a particular question to R&D; and other administrative sources for which enterprises apply for a related scheme.

Sub-Concept 3.7: Reference area

Malta and Gozo (NUTS 1 and 2).

Sub-Concept 3.8: Time coverage

The R&D (BES) survey is carried out annually covering one reference year.

Sub-Concept 3.9: Base period

Not applicable.

CONCEPT 4 – UNIT OF MEASURE

R&D expenditure is available in the following units:

- National currency (MIO_NAC)

R&D personnel data are available in:

- Full-time equivalent (FTE);
- Head count (HC).

CONCEPT 5 – REFERENCE PERIOD

The reference period is one calendar year.

CONCEPT 6 – INSTITUTIONAL MANDATE

Sub-Concept 6.1: Legal acts and other agreements

[The Malta Statistics Authority Act, 2000](#) empowers the NSO to collect, compile, extract and release official statistics related to demographic, social, environment, economic and general activities and conditions of Malta.

As a member of the European Union (EU), Malta has to observe the Council Regulations. Until 2003 R&D data were collected under gentleman's agreement. In 2003, Decision No 1608/2003/EC of the European parliament and of the Council of 22 July 2003 concerning the production and development of community statistics on science and technology was adopted. Between reference years 2003 to 2011 the data collection was based on the Commission Regulation No 753/2004 on statistics on science and technology (OJ L 118, page 23 from 23 April 2004), and as amended by the Commission Regulation (EC) No 973/2007 (OJL 216, page 10 from 21 August 2007). From the reference year 2012 onwards, the Commission Implementing Regulation on statistics science and technology No 995/2012 (OJ L 299, page 18 from 27 October 2012) applies.

Sub-Concept 6.2: Data sharing

Not applicable.

CONCEPT 7 – CONFIDENTIALITY

Sub-Concept 7.1: Confidentiality – Policy

At National level:

The NSO requests information for the compilation of official statistics according to the articles of the [MSA Act – Cap. 422](#) and the [Data Protection Act – Cap. 586](#) of the Laws of Malta implementing the General Data Protection Regulations (GDPR).

Article 40 of the MSA Act stipulates the restrictions on the use of information while Article 41 stipulates the prohibition of disclosure of information. Furthermore, Section IX of the Act (Offences and Penalties) lays down the measures to be taken in case of unlawful exercise of any officer of statistics regarding confidentiality of data.

Since its inception, the NSO has always assured that all data collected remains confidential and that it is used for statistical purposes only according to the articles and derogations stipulated in the laws quoted above. The Office is obliged to protect the identify of data providers and refrain from divulging any data to third parties that might lead to the identification of persons or entities.

During 2009, the NSO has set up a Statistical Disclosure Committee to ensure that statistical confidentiality is observed, especially when requests for microdata are received.

Upon employment, all NSO employees are informed of the rules and duties pertaining to confidential information and its treatment. In line with stipulations of the MSA Act, before

commencing work, every employee is required to take an oath of secrecy whose text is included in the same Act.

An internal policy on anonymisation and pseudo-anonymisation is in place to ascertain that adequate methods are used for the protection of data which the office collects and shares with the public in its capacity as the National Statistics Office. The policy is meant to safeguard confidentiality of both personal and business data entrusted to the NSO. The document provides guidance for all NSO employees who process data on a daily basis as to how anonymisation and pseudo-anonymisation methods should be applied. The policy applies to all confidential, restricted and internal information, regardless of form (paper or electronic documents, applications and databases) that is received, processed, stored and disseminated by the NSO.

At European level:

[Regulation \(EC\) No 223/2009](#) on European statistics (recital 24 and Article 20(4) of 11 March 2009 (OJ L 87, p. 164), stipulates the need to establish common principles and guidelines ensuring the confidentiality of data used for the production of European statistics and the access to those confidential data with due account for technical developments and the requirements of users in a democratic society.

Sub-Concept 7.2: Confidentiality – Data Treatment

Data are only disseminated in aggregate form and no statistical disclosure control is applied onto it, however, data received are treated as confidential and names of entities are never disclosed.

CONCEPT 8 – RELEASE POLICY

Sub-Concept 8.1: Release Calendar

An advance release calendar is maintained by the NSO and published on the NSO website. The calendar projects three months of news releases (including the current and two subsequent months).

Sub-Concept 8.2: Release Calendar access

[News Release Calendar \(gov.mt\)](#)

Sub-Concept 8.3: User access

An internal policy on dissemination is in place to govern the dissemination of official statistics in an impartial, independent, and timely manner, making them available simultaneously to all users.

The NSO's primary channel for the dissemination of official statistics is the NSO website. Tailored requests for statistical information may also be submitted through the NSO website.

Moreover, dedicated news releases are available in electronic format on the NSO website.

CONCEPT 9 – FREQUENCY OF DISSEMINATION

R&D data are published annually in July.

CONCEPT 10 – ACCESSIBILITY AND CLARITY

Sub-Concept 10.1: News release

The Research and Development Release is published annually. The link for the latest release can be accessed through the following link: [Research and Development in Malta \(gov.mt\)](http://www.gov.mt/research-development)

Sub-Concept 10.2: Publications

Not applicable.

Sub-Concept 10.3: Online Database

Statistics on Research and Development may be found on the Eurostat's database through the following link: [Database - Eurostat \(europa.eu\)](http://ec.europa.eu/eurostat)

Sub-Concept 10.4: Micro-data access

Not applicable.

Sub-Concept 10.5: Other

Adhoc requests may be supplied through the NSO website at: <http://nso.gov.mt/en/Pages/NSO-Home.aspx> or directly through: <https://nso.gov.mt/en/Services/Pages/Request-for-Information.aspx>

Sub-Concept 10.6: Documentation on methodology

The methodology established for R&D data are documented within EC Regulation 995/2012: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0995>. Documentation on methodology at national level can be accessed at: [NSO Metadata \(gov.mt\)](http://www.gov.mt/nso-metadata)

Sub-Concept 10.6.1: Metadata completeness rate

Information about all required metadata concepts (and sub-concepts thereof) are provided.

Sub-Concept 10.7: Quality Documentation

Dedicated SIMS reports are available to the public on the [NSO's metadata website including concepts related to metadata and quality](#).

Quality Reports are provided to Eurostat systematically once in two years at the minimum.

CONCEPT 11 – QUALITY MANAGEMENT

Sub-Concept 11.1: Quality Assurance

The NSO ensures the accuracy of data released to the public and prepares clear methodological notes which explain the processes involved in the collection and production of official statistics.

The NSO has developed an internal Quality Management Framework (QMF) which is built on common requirements of the ESS Code of Practice (ESS CoP). A document was prepared to include a set of general quality guidelines spanning over all statistical domains. Assuring methodological soundness is an integral part of the QMF, nonetheless, the document spans also on other areas related to institutional aspects.

Every five to seven years, the NSO participates in a Peer Review exercise through which the compliance of its operations with principles of the ESS CoP is assessed by an expert team. Peer Reviews are indeed part of the European Statistical System (ESS) strategy to implement the ESS CoP. Each NSI is expected to provide information as requested by a standard self-assessment questionnaire. Following this an expert team visits the office to meet NSI representatives and main stakeholders. Peer Reviews result in a compliance report and the listing of a set of Improvement Actions which need to be followed up by the NSI. The next round of Peer Reviews is planned to be carried out in 2022.

Sub-Concept 11.2: Quality Assessment

The coverage is across all NACE sections and size classes of active known R&D enterprises. The questionnaires and guidelines are sent by post to the target respondents. Questionnaires are vetted individually once brought to the office. Any missing information is requested via telephone or e-mail. Data is also compared with previous years to ensure consistency of results. Any queries are raised with the enterprise and, if available, with the companies' financial statements.

CONCEPT 12 – RELEVANCE

Sub-Concept 12.1: User needs

The list of users includes:

- The Malta Council for Science and Technology (to set out national policy);
- Malta Enterprise;
- Researchers and students (to substantiate their studies); and
- Eurostat (for the compilation of European Innovation Scoreboard).

Sub-Concept 12.2: User satisfaction

The last User Satisfaction Survey was held in 2014 with the aim to collect information about key users' satisfaction with statistical output.

The NSO keeps record of the number of News Releases and publications disseminated on its website; the users to whom statistical products are provided; as well as the number of requests that are processed every year.

News Releases and tailor-made statistical outputs were assessed on account of their quality, timeliness, and on their ability to meet users' needs.

Sub-Concept 12.3: Data Completeness

Data completeness of both preliminary and final mandatory data is 100% satisfied.

CONCEPT 13 – ACCURACY AND RELIABILITY

Sub-Concept 13.1: Overall accuracy

A questionnaire is mailed to the selected enterprises along with a self-addressed envelope. Responses are vetted by BR unit personnel and any missing information is requested via telephone or e-mail. If available, companies' financial statements are also checked. Data is also compared with previous years to ensure consistency of results.

The value of R&D expenditure is cross checked with the value given from the Community Innovation Survey (CIS), if the reference year is an even year. All efforts are done to ensure that it is as accurate as possible.

Sub-Concept 13.2: Sampling errors

Data are collected through a census questionnaire and therefore there are no sampling errors.

Sub-Concept 13.3: Non-sampling error

The main forms of non-sampling errors are item and unit non-response. In case of unit non-response, a number of reminders are sent to ensure that the relevant unit responds to the questionnaire. Data from the previous year is considered as constant when no contact is made.

With respect to item non-response, the enterprise is contacted to provide the missing information. Chasing for missing information is done until item response is achieved. For questions related to monetary amounts, the chasing is continued until data is provided. For other items, chasing is done to a certain extent, with missing data being eventually imputed using data from the previous year or any relevant information included in the questionnaire of the current year.

Data entry errors might also occur since data entry is subject to human error. This is kept to minimum through inbuilt validation rules for skipping and routing of questions.

Sub-Concept 13.3.1: Coverage error

The target enterprises are the ones which had R&D taking place during the year under study.

The main identifiers of the active R&D population are: active R&D enterprises from previous rounds, the Community Innovation Survey (CIS), as it addresses a particular question to R&D; and other administrative sources for which enterprises apply to benefit from funds or tax rebates related to R&D.

Enterprises which do not feature in any of the above categories, which however carry out R&D activities, would not be included in the target population, thus resulting in under coverage. Under coverage cannot, however, be quantified.

Sub-Concept 13.3.1.1: Over Coverage

Over coverage is not possible as the enterprises recording R&D are as indicated within the R&D survey itself. Enterprises that were thought to have R&D but replied that they do not carry out any R&D activity, are taken out of the population.

Sub-Concept 13.3.1.2: Common Units Proportion

Not applicable.

Sub-Concept 13.3.2: Measurement error

Every effort has been made in the questionnaire's design and testing phase to reduce measurement errors. A set of guidelines have been attached to the questionnaire in order to guide the respondents. Once the questionnaires have been received, they are vetted by experienced personnel accordingly.

Sub-Concept 13.3.3: Non-response error

Attempts are made to keep non-response errors at a minimum with the use of reminders/recalls sent to enterprises. As recommended in the survey guidelines, three reminder letters are sent to the remaining non-respondents. The third reminder is a legal letter by the NSO's Attorney and is sent via registered mail. If no feedback is still received, data is estimated from previous responses. The response rate stood at 68%.

Sub-Concept 13.3.3.1: Unit non-response

In case of unit non-response, a number of reminders are sent to ensure that the relevant unit responds to the questionnaire. Data from the previous year is considered as constant when no contact is made.

Sub-Concept 13.3.3.2: Item non-response

With respect to item non-response the enterprise is contacted in order to provide the missing information. Chasing for missing information is done until item response is achieved. For questions related to monetary amounts, the chasing is continued until data is actually provided. For other items, chasing is done to a certain extent, with missing data being eventually imputed using data from the previous year or any relevant information included in the questionnaire of the current year.

Sub-Concept 13.3.4: Processing error

Data entry errors are kept to a minimum as the IT programme includes in built validation rules. No specific data editing is employed since a company by company approach is used. Once questionnaires are received, they are checked and vetted individually, and companies are directly contacted as deemed necessary.

Sub-Concept 13.3.5: Model assumption error

Not applicable.

CONCEPT 14 – TIMELINESS AND PUNCTUALITY

Sub-Concept 14.1: Timeliness

Provisional data are transmitted 10 months from end of reference period and final data are transmitted after 18 months.

Sub-Concept 14.2: Punctuality

Data are provided in a timely manner and there is therefore no time-lag.

CONCEPT 15 – COHERENCE AND COMPARABILITY

Sub-Concept 15.1: Comparability – Geographical

Data are comparable across, as all Member States use the harmonised Frascati Manual.

Sub-Concept 15.2: Comparability – Over Time

Data are comparable from 2004 onwards. Data coverage was enhanced over the years. In 2004, R&D data and CIS data were used together utilising an ancillary section related to R&D personnel. The first dedicated R&D survey was carried out in 2005. As from 2010, coverage increased to all employment size classes and NACE sectors.

Sub-Concept 15.3: Coherence – Cross Domain

Comparisons between R&D statistics and relevant statistics for which R&D statistics are also collected through the Innovation Survey.

Sub-Concept 15.3.1: Coherence – Sub-Annual and Annual statistics

Not applicable given that R&D data are only published once a year.

Sub-Concept 15.3.2: Coherence – National Accounts

Not applicable.

Sub-Concept 15.4: Coherence – Internal

R&D data are coherent with CIS data for those enterprises that fall under the CIS coverage every 2nd year. One question in the CIS asks for the expenditure of intramural R&D and this is cross checked with the Research & Development Survey.

No other survey except for CIS is comparable to the R&D survey.

CONCEPT 16 – COST AND BURDEN

The main cost involved in the process of R&D data collection is the time spent by one statistician in collecting, analysing and reporting data. Also, since questionnaires are sent by post, the survey involves printing and postage costs.

The time required by R&D enterprises to provide information is equal to 3.5 hours. On the other hand, non-R&D enterprises normally take about an hour to fill in the questionnaire and provide the required information.

CONCEPT 17 – DATA REVISION

Sub-Concept 17.1: Data revision – Policy

At the NSO, there is currently no internal policy governing revisions that occur for all statistics produced. Nonetheless, a revisions policy is being drafted to safeguard a coordinated revisions system across statistical domains.

This policy will take account of the need and causes for revisions; time and frequency of revisions; data and other statistical products affected by such revisions; and length of periods revised.

Sub-Concept 17.2: Data revision – Practice and Data Revision

The released data are considered final.

CONCEPT 18 – STATISTICAL PROCESSING

Sub-Concept 18.1: Source data

The target enterprises are the ones which had R&D taking place during the year under study. The main identifiers of the active R&D population are: active R&D enterprises from previous rounds, the Community Innovation Survey (CIS), as it addresses a particular question to R&D; and other administrative sources for which enterprises apply to benefit from funds or tax rebates related to R&D.

R&D data are collected by means of a postal survey.

Sub-Concept 18.2: Frequency of data collection

The R&D questionnaire is sent out once a year.

Sub-Concept 18.3: Data Collection

Data collection is done via postal mail. A self-addressed envelope is provided with each survey.

Sub-Concept 18.4: Data Validation

Completed questionnaires which arrive by mail to the office are vetted by BR Unit personnel. During vetting, the logic of the questionnaire is checked. The data entry application includes in-built validations which also cater for the logic of the questionnaire. A second round of vetting is done more attentively during the reporting through the year to year checks and data from the Innovation Survey. At this stage data are also compared with previous years for consistency and should any queries arise, the enterprise is contacted by telephone.

Sub-Concept 18.5: Data Compilation

Data compilation is done automatically by the R&D IT system, data are loaded, validated, aggregated and Eurostat tables are filled in.

Sub-Concept 18.5.1: Imputation

The exact rate with which original collected values are replaced is not available. Upon receipt of questionnaires, enterprises are contacted individually in case of non-response, and a value is sought.

Sub-Concept 18.6: Adjustment

Not applicable.

Sub-Concept 18.6.1: Seasonal Adjustment

Not applicable.

CONCEPT 19 – COMMENT

No further comments.